

Isenbruck I Bösl I Hörschler I Wichmann I Huhn, Patentanwälte Postfach 860 880 D-81835 München
23. Aug. 2004
Frist: Vorfrist: VV:

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

B 1	
B 2	
B 3	
Sekr	<input checked="" type="checkbox"/>
EDV	

Applicant's or agent's file reference C62678PC	FOR FURTHER ACTION see Form PCT/ISA/220A, as well as, where applicable, Item 5 below.	
International application No. PCT/EP2004/003165	International filing date (day/month/year) 25/03/2004	(Earliest) Priority Date (day/month/year) 26/03/2003
Applicant CYTOS BIOTECHNOLOGY AG		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 8 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

a. With regard to the language, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ The international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

b. ☒ With regard to any nucleotide and/or amino acid sequence disclosed in the international application, see Box No. I.

2. ☐ Certain claims were found unsearchable (See Box II).

3. ☐ Unity of invention is lacking (see Box III).

4. With regard to the title,

☐ the text is approved as submitted by the applicant.

☒ the text has been established by this Authority to read as follows:

**PACKAGING OF IMMUNOSTIMULATORY OLIGONUCLEOTIDES INTO VIRUS-LIKE PARTICLES:
METHODS OF PREPARATION AND USES**

Patent agent

5. With regard to the abstract,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this International search report, submit comments to this Authority.

6. With regards to the drawings,

a. the figure of the drawings to be published with the abstract is Figure No. _____

☐ as suggested by the applicant.

☐ as selected by this Authority, because the applicant failed to suggest a figure.

☐ as selected by this Authority, because this figure better characterizes the invention.

b. ☒ none of the figures is to be published with the abstract.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/EP2004/003165

Box No. I Nucleotide and/or amino acid sequence(s) (Continuation of item 1.b of the first sheet)

1. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, the international search was carried out on the basis of:
 - a. type of material
 - ☒ a sequence listing
 - ☐ table(s) related to the sequence listing
 - b. format of material
 - ☒ in written format
 - ☒ in computer readable form
 - c. time of filing/furnishing
 - ☒ contained in the international application as filed
 - ☒ filed together with the international application in computer readable form
 - ☐ furnished subsequently to this Authority for the purpose of search
2. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
3. Additional comments:

INTERNATIONAL SEARCH REPORT

International Application No
PCT/EP2004/003165A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 A61K39/39 C07H21/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 A61K C07H

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ, BIOSIS, EMBASE

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
	-/--	

☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

* Special categories of cited documents :

A document defining the general state of the art which is not considered to be of particular relevance

E earlier document but published on or after the international filing date

L document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

O document referring to an oral disclosure, use, exhibition or other means

P document published prior to the international filing date but later than the priority date claimed

T later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

X document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

Y document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

& document member of the same patent family

Date of the actual completion of the international search

12 August 2004

Date of mailing of the international search report

24/08/2004

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Mundel, C

INTERNATIONAL SEARCH REPORT

International Application No

PCT/EP2004/003165

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	GERBER S ET AL: "Human papillomavirus virus-like particles are efficient oral immunogens when coadministered with Escherichia coli heat-labile enterotoxin mutant R192G or CpG DNA" JOURNAL OF VIROLOGY, THE AMERICAN SOCIETY FOR MICROBIOLOGY, US, vol. 75, no. 10, May 2001 (2001-05), pages 4752-4760, XP002246338 ISSN: 0022-538X	1, 17, 26, 30, 36, 100, 102, 103
Y	abstract	2-16, 18-25, 27-29, 31-35, 37-99, 101, 104-113
	page 4573, left-hand column, line 1 - line 5 page 4759, left-hand column, line 10 - line 13 page 4759, left-hand column, line 36 - line 39	
Y	WO 01/22972 A (COLEY PHARMACEUTICAL GMBH ; UNIV IOWA RES FOUND (US)) 5 April 2001 (2001-04-05)	1, 17-24, 26, 27, 30, 36, 100, 102-105, 109-113
Y	abstract	2-16, 25, 28, 29, 31-35, 37-99, 101, 106-108
	page 33, line 18 - line 25 table A; sequence 997 page 66 - page 72 page 79 page 81, line 31 - page 82, line 15 page 115, line 19 - page 116, line 8	
Y	US 2003/050268 A1 (BERG DANIEL J ET AL) 13 March 2003 (2003-03-13) abstract table I; sequence 950 table 2; sequence 1039 paragraph '0169!	1-113
	----- -/--	

INTERNATIONAL SEARCH REPORT

International Application No
PCT/EP2004/003165

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	WO 01/22990 A (COLEY PHARM GROUP INC ; UNIV IOWA RES FOUND (US)) 5 April 2001 (2001-04-05) abstract page 7; sequence 7 page 12; sequence 15 page 34, line 29 - line 31 page 35, line 12 - line 30	1-113
Y	WO 02/053141 A (COLEY PHARM GROUP INC) 11 July 2002 (2002-07-11) table 1; sequence 997 page 55, line 27 - page 56, line 2	1-113
Y	WO 98/49195 A (ROTTIER PETRUS JOSEPHUS MARIE ; UNIV UTRECHT (NL)) 5 November 1998 (1998-11-05) abstract page 6, line 13 - line 15 page 6, line 28 - line 30 page 8, line 16 - line 26	1-113
Y	KURAMOTO E ET AL: "OLIGONUCLEOTIDE SEQUENCES REQUIRED FOR NATURAL KILLER CELL ACTIVATION" JAPANESE JOURNAL OF CANCER RESEARCH JAPANESE CANCER ASSOCIATION, TOKYO, JP, vol. 83, no. 11, November 1992 (1992-11), pages 1128-1131, XP008024190 ISSN: 0910-5050 abstract table III	1-113
Y	KLINMAN D M ET AL: "THE USE OF CPG ODN AS ANTIALLERGENS, ANTICANCER AGENTS AND IMMUNOPROTECTIVE AGENTS HAS ATTRACTED CONSIDERABLE INTEREST. IMMUNOTHERAPEUTIC APPLICATIONS OF CPG-CONTAINING OLIGODEOXYNUCLEOTIDES" DRUG NEWS AND PERSPECTIVES, XX, XX, vol. 13, no. 5, 2000, pages 289-296, XP000999966 ISSN: 0214-0934 abstract page 290, right-hand column, last paragraph page 294, middle column, line 25 - line 31 page 294, right-hand column, last paragraph	1-113
	----- -/--	

INTERNATIONAL SEARCH REPORT

International Application No

PCT/EP2004/003165

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>KRUG A ET AL: "Identification of CpG oligonucleotide sequences with high induction of IFN-alpha/beta in plasmacytoid dendritic cells." EUROPEAN JOURNAL OF IMMUNOLOGY. JUL 2001, vol. 31, no. 7, July 2001 (2001-07), pages 2154-2163, XP002292085 ISSN: 0014-2980 abstract page 2159, right-hand column, line 1 - line 7</p> <p>-----</p>	1-113

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/EP2004/003165

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 0122972	A	05-04-2001	AU 7615300 A	30-04-2001
			BG 106538 A	29-12-2002
			BR 0014236 A	15-10-2002
			CA 2388055 A1	05-04-2001
			CN 1454091 T	05-11-2003
			CZ 20021050 A3	15-01-2003
			EE 200200158 A	16-06-2003
			EP 1221955 A2	17-07-2002
			HU 0202639 A2	28-12-2002
			JP 2003510282 T	18-03-2003
			NO 20021453 A	27-05-2002
			NZ 517929 A	27-02-2004
			PL 354997 A1	22-03-2004
			SK 3962002 A3	01-04-2003
			TR 200200797 T2	21-10-2002
			WO 0122972 A2	05-04-2001
			US 2003212026 A1	13-11-2003
			ZA 200201963 A	10-03-2003
US 2003050268	A1	13-03-2003	NONE	
WO 0122990	A	05-04-2001	AU 7619000 A	30-04-2001
			CA 2386019 A1	05-04-2001
			EP 1220684 A2	10-07-2002
			JP 2003510290 T	18-03-2003
			WO 0122990 A2	05-04-2001
			ZA 200201959 A	10-03-2003
WO 02053141	A	11-07-2002	WO 02053141 A2	11-07-2002
			US 2003055014 A1	20-03-2003
WO 9849195	A	05-11-1998	AU 7350798 A	24-11-1998
			WO 9849195 A1	05-11-1998